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THE CANADIAN MACHINERY AND EQUIPMENT INDUSTRY

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Staff Paper

THE CANADIAN MACHINERY AND EQUIPMENT INDUSTRY

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SUMMARY

This paper on the Canadian machinery and equipment industry is prepared in response to three main issues:

- a growing trade deficit in spite of an expanding economy
- the need to strengtnen the Canadian industrial structure
- importance of the industry to Ontario's economy

Major Findings:

Production/Employment/Firm Characteristics:

- The Canadian machinery and equipment industry is composed of about 2,000 firms which vary greatly in size, production technology and product sophistication. It is ranked as the nation's ninth largest manufacturing industry in terms of production, its fifth largest employer, and its fourth largest exporter.
- In 1978, Canadian production of machinery and equipment accounted for nearly $6 billion of a total Canadian market of $11 billion, and supported some 120,000 direct and 200,000 indirect jobs. About two-thirds of the production and employment are located in Ontario.

Trade Performance:

- Machinery trade deficits averaged over $4 billion per year in the past five years, accounting for 40 per cent of the entire deficit in finished manufactured goods.
- Despite growing export sales between 1970 and 1978, Canada tripled its machinery trade deficits (from $1.6 billion to $4.8 billion) and the rate has grown much faster than the growth of the Canadian market.
- The largest deficit shows up in resource-based machinery including agricultural machinery which traditionally has given Canada a world-wide reputation and capability.
- Machinery imports now account for over two-thirds of the domestic market, compared with about half in 1970. Overall, more than 50 per cent of the machinery imports enter duty free.
- Next to Iceland, Canada has the poorest machinery trade performance (measured by the extent of import penetration, total absolute trade deficit and trade deficit per capita) of all the 24 OECD countries. Many smaller countries such as Finland, Norway and Australia have a greater degree of machinery self-sufficiency than Canada.

Return on Investment and Capital Expenditure

- The Canadian machinery industry has a higher rate of return on investment than in manufacturing industries as a whole, and than such industries as electrical products and paper allied industries. At the same time, the industry's new capital expenditures have not reduced import penetration.

Research and Development

- The industry's rate of increase in R and D spending more than matches total Canadian manufacturing R and D spending; however, compared with its U.S. counterpart, its commitment to research and development lags appreciably, both in absolute expenditures (ratio of 1 to 50) and rate of increase.

(I) BACKGROUND

This staff report provides a broad perspective on the major characteristics of the Canadian machinery and equipment industry.[1] It is prepared in response to three main issues:

- Trade Deficit: In spite of a lower currency-valued Canadian dollar and a growing economy, the size of our trade deficit continues to increase. In particular, the machinery sector has incurred probably the largest deficit, and one that continues to grow.

- Industrial Strategy: The machinery sector is a high-technology industry which provides vital inputs to most aspects of industrial production. A vigorous and versatile machinery and equipment industry is essential to Canada's efforts to achieve a more sophisticated industrial structure.

- Importance to the Ontario's Economy: The machinery industry ranked as the nation's ninth largest manufacturing industry in terms of production, its fifth largest employer, and its fourth largest exporter. Two-thirds of the production and employment is located in Ontario and the economic base of a number of communities is dependent on it (Table 1). The industry ranks as the Province's sixth largest manufacturing industry in terms of production and employment, and is Ontario's fourth largest manufacturing exporter.

GEOGRAPHIC DISTRIBUTION OF FIRMS, PRODUCTION AND EMPLOYMENT, MACHINERY INDUSTRY IN CANADA, 1975 — TABLE 1

Region	Establishments (%)	Production (%)	Employment (%)
Atlantic	1.9	0.5	0.9
Quebec	17.8	15.4	19.5
Ontario	56.4	69.5	64.3
Prairies	13.2	8.3	9.0
B.C.	10.7	6.3	6.3
Canada	100.0	100.0	100.0

Source: Statistics Canada, extracted from the Report by the Sector Task Force on the Canadian Machinery Industry, 1978

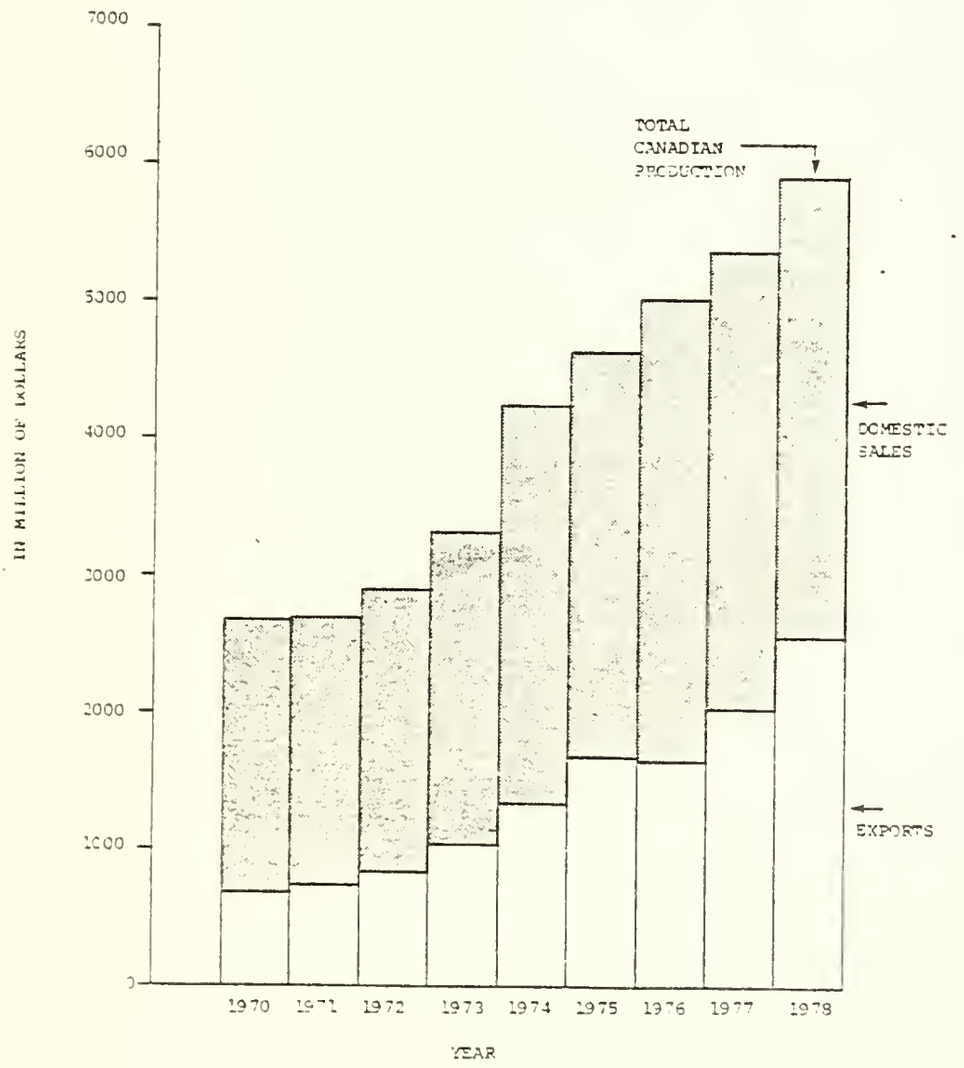
[1] The machinery industry referred to in this report covers all machinery and equipment used in the resource, manufacturing and service industries except electrical and transportation equipment. The definition is similar to that adopted by the Canadian Machinery Industry Sector Task Force Report, 1978, and is somewhat broader than the one used by Statistics Canada, which amounts to about 80 per cent of the Task Force's coverage.

(II) PRODUCTION AND EMPLOYMENT

- In 1978, Canadian production of machinery and equipment accounted for nearly $6 billion in a total domestic market of about $11 billion, supporting about 120,000 direct employment and another 200,000 indirectly.2

- Since 1970, production has increased at a rate of more than 10 per cent annually (Figure 1). Within the industry, the highest growth rate has occurred in the resourced-based machinery sub-sector which accounts for nearly 40 per cent of the total production (Table 2).

FIGURE 1: CANADIAN PRODUCTION, DOMESTIC SALES AND EXPORTS, MACHINERY AND EQUIPMENT INDUSTRY, 1970 TO 1978



SOURCE: Statistics Canada
Department of Industry, Trade and Commerce

Note: Figures for 1977 and 1978, preliminary

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2. Report by the Sector Task Force on The Canadian Machinery Industry 1978, Submission to the Federal Government, MEMAC, 1979 and Department of Industry, Trade and Commerce.

AVERAGE ANNUAL CHANGES AND SHARE OF PRODUCTION BY SUB-SECTORS, CANADIAN MACHINERY AND EQUIPMENT INDUSTRY, 1970-1978

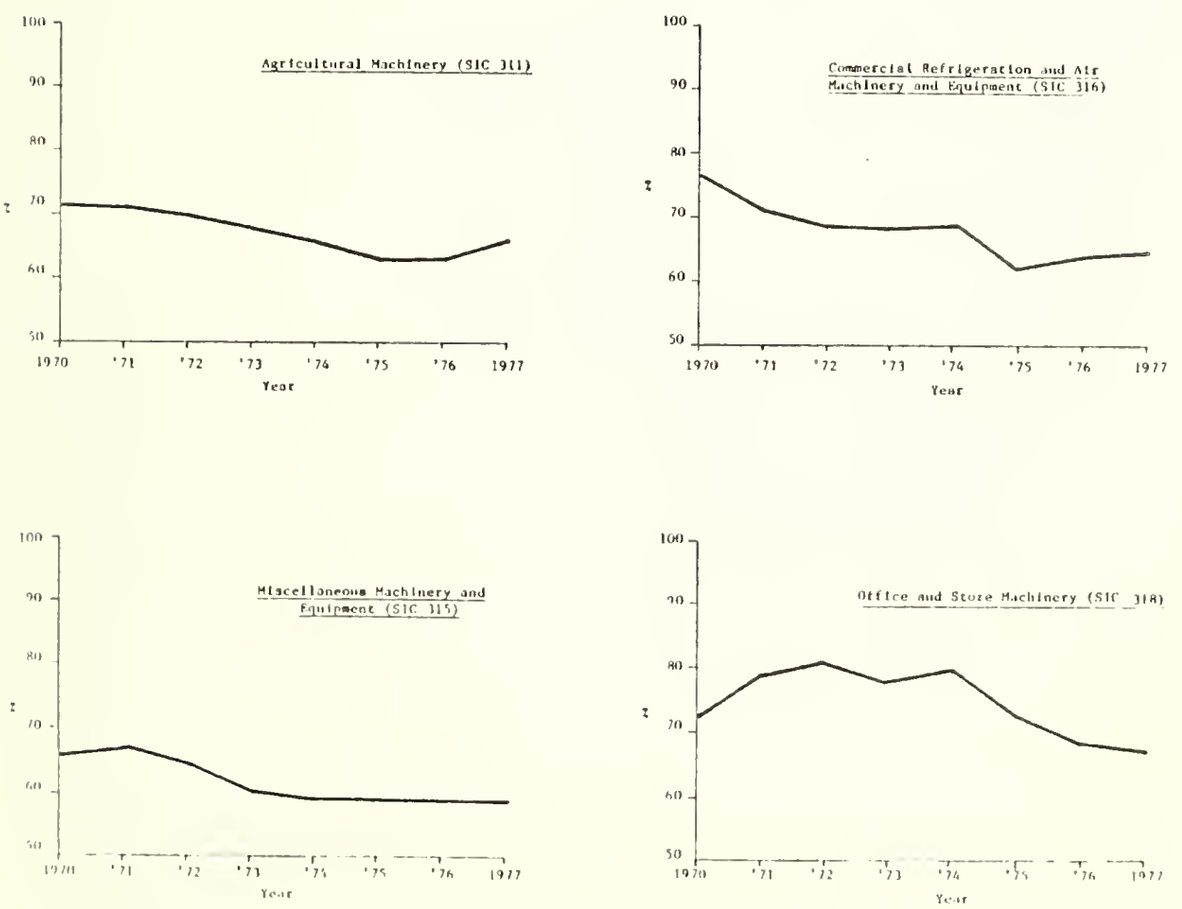
TABLE 2

Machinery Subsectors	Average Annual % Change, 1970-1978	% of Total Production
Resource-Based	13.4	38.4
Plant and Industrial	8.2	37.6
Service	9.7	24.0
Overall	10.4	100.0

Sources: Statistics Canada and Department of Industry, Trade, and Commerce

. . Ontario's share of Canada's production and employment in many of the machinery industry's subgroups has experienced a gradual decline since 1970 (Figure 2).

FIGURE 2: SHARE OF ONTARIO AS A PER CENT OF CANADA'S MACHINERY INDUSTRY EMPLOYMENT, 1970 to 1977



Source: Statistics Canada

Note: Machinery industry definition used here was based on Statistics Canada.
Finding was based on employment as an indicator, but similar trend was noted using production
% Distribution of employment among the above four SIC groups in Ontario are:
SIC 311 = 3% SIC 316 = 19%
SIC 315 = 65% SIC 318 = 13%.

In Ontario, the bulk of the industry's production and employment is concentrated in the Central Ontario Region (Table 3). However, a substantial number of the larger establishments in the industry are located outside large centres. In a number of communities such as Brantford and Goderich, the machinery firms are the major source of employment (Table 4).

DISTRIBUTION OF ESTABLISHMENT, EMPLOYMENT AND PRODUCTIVITY BY REGIONS, MACHINERY AND EQUIPMENT INDUSTRY, 1975 — TABLE 3

Planning Regions	% of Total		
	Numer of Establishments	Employment	Production
Central	78	76	77
Southwest	15	15	17
Eastern	4	5	3
Northern	3	4	3
Ontario	100	100	100

Source: Statistics Canada

Notes: Statistics Canada Machinery and Equipment definition

TABLE 4 LOCATIONS OF MAJOR ESTABLISHMENTS, MACHINERY AND EQUIPMENT INDUSTRY, ONTARIO 1977[1]

Urban Centres	1978 Population[2]	Number of Establishments by Employment Size 200-499	500-999	1000 and Over	Total
Central Ontario					
Metro Toronto	2,129,200	8	2	1	11
Hamilton/Wentworth	407,500	1	1	1	3
Waterloo RM	297,100	6	-	-	6
Mississauga	273,300	3	1	-	4
Brampton/Bramlea	123,300	1	-	-	1
Niagara Falls	70,600	2	-	-	2
Brantford	69,100	2	2	4	8
Peterborough	59,300	1	-	1	2
Welland	45,300	-	1	-	1
Barrie	35,600	2	1	-	3
Orillia	23,600	-	1	-	1
Port Hope	10,000	1	-	-	1
Southwest					
London	253,700	2	-	-	2
Windsor	197,200	1	-	-	1
Stratford	26,500	2	-	-	2
St. Thomas	27,100	1	1	-	2
Woodstock	26,000	1	1	-	2
Owen Sound	19,700	2	-	-	2
Goderich	7,300	-	1	-	1
Eastern					
Ottawa/Carleton	534,900	1	1	-	2
Belleville	34,300	1	-	-	1
Batawa	Not Available	1	-	-	1

Source: Statistics Canada

Notes: 1) Statistics Canada Machinery and Equipment Industry definition

2) Assessed population

(III) FIRM CHARACTERISTICS

- There are about 2,000 firms in Canada, ranging from some of the country's largest industrial corporations and multinationals employing over 3,000 people (for example, Massey Ferguson) to local machinery-shop type establishments with fewer than 10 employees. The average size is about 60 employees per establishment.

- Although firms with 100 employers or over constituted only 10 per cent of the total establishments they accounted for two-thirds of the total production (Table 5).

- With the exception of the industry's agricultural macninery sub-sector, most of the larger firms are foreign-owned. Many of the Canadian-owned establishments employ fewer than 20 people and are geared mainly to serving local needs. In Ontario slightly over one-third of the machinery firms are foreign-owned, but they account for over 70 per cent of the production (Table 6).

- Many of the subsidiaries produce essentially the same line of products as that of the parent company. Production rationalization is most prominent in the agricultural equipment sub-sector.

- Most of the U.S.-owned firms are allowed to compete extensively for international projects, including those financed by the Canadian Export Development Corporation (EDC). The European-owned firms are set up more often to cater strictly to the Canadian or North American market.

PER CENT DISTRIBUTION OF ESTABLISHMENTS BY SIZE, AND SHIPMENTS, MACHINERY INDUSTRY, CANADA, 1974 — TABLE 5

Number of Employees	% Establishments	% Shipments
1 - 19	61	8
20 - 99	29	26
100 +	10	66

Source: Report by the Federal Sector Task Force, Ibid

DISTRIBUTION OF FIRMS AND PRODUCTION BY COUNTRY OF CONTROL, MACHINERY INDUSTRY, ONTARIO, 1974 — TABLE 6

Country of Control	% of Total Establishment	% of Total Production
U.S.	30	61
Other Foreign	5	12
Total Foreign	35	73
Canada	65	27
Total	100	100

Source: Statistics Canada

(IV) TRADE PERFORMANCE

. In the five years 1974-1978, machinery trade deficits averaged over $4 billion per year, accounting for 40 per cent of the entire deficit in finished manuactured goods (Table 7). This amounted to about three times the total deficit incurred by the motor vehicles and parts sector, during the period.

MACHINERY TRADE DEFICITS AS A PER CENT OF TOTAL TRADE DEFICITS IN FINISHED MANUFACTURED GOODS AND TOTAL CURRENT ACCOUNT DEFICITS, CANADA, 1974 TO 1978

TABLE 7

YEAR	FINISHED MANUFACTURED GOODS DEFICITS ($M) MACHINERY	MOTOR VEHICLES AND PARTS	MANUFACTURED GOODS	TOTAL	TOTAL CURRENT ACCOUNTS DEFICITS ($M)	% OF MACHINERY TO TOTAL MANUFACTUPED GOODS DEFICITS	% OF MACHINERY TO TOTAL CURRENT ACCOUNTS DEFICITS
1974	-3,295	-1,326	-4,092	-8,713	-1460	38	226
1975	-3,782	-1,683	-4,222	-9,687	-4757	39	80
1976	-4,053	-1,080	-4,376	-9,509	-3842	43	105
1977	-4,121	- 966	-5,242	-10,329	-4299	40	96
1978	-4,799	-1,413	-5,334	-11,546	-5302	42	91
AVERAGE ANNUAL 1974 TO 1978	-4,010	-1,294	-4,653	-9,957	-3932	40	102

Source: Statistics Canada
Department of Industry, Trade and Commerce

. Since 1970, Canadian machinery trade deficits have been increasing at a faster rate than the growth of the Canadian market, (+15.1% versus +12.3%, Table 8). To a large extent, the deficit increase can be attributed to the inability of the industry to increase its domestic sales in pace with the growth of the Canadian market. As a result, there has been a very substantial increase in import penetration of the domestic machinery market, from a relative share of 50 per cent in 1970 to nearly 70 per cent in 1978 (Table 9).

CANADIAN MACHINERY EXPORTS, IMPORTS AND MARKET, 1970 to 1978

TABLE 8

Year	Domestic Sales ($M)	Exports ($M)	Imports ($M)	Deficits ($M)	Total Canadian Market ($M)	Proportion Of Deficits To Canadian Market (%)	Proportion Of Imports To Canadian Market (%)
1970	1,987	698	2,253	-1,555	4,240	37	53
1971	1,983	712	2,356	-1,644	4,339	38	54
1972	2,103	803	2,843	-2,040	4,946	41	57
1973	2,322	1,003	3,516	-2,513	5,838	43	60
1974	2,938	1,322	4,617	-3,295	7,555	44	61
1975	2,948	1,686	5,468	-3,782	8,416	45	65
1976	3,380	1,651	5,704	-4,053	9,084	45	63
1977p	3,365	2,023	6,144	-4,121	9,509	43	65
1978p	3,347	2,565	7,364	-4,799	10,711	45	69
AVERAGE ANNUAL % CHANGE 1970-1978	-6.7%	+17.7%	+16.0%	+15.1%	+12.3%		

Source: Statistics Canada
Department of Industry, Trade and Commerce

Note: p = preliminary

Although the export growth rate was, in absolute terms higher than the import one (18 per cent versus 16 per cent per annum since 1970), the impact was reduced somewhat since the export base was considerably smaller than the import.

IMPORT PENETRATION, CANADIAN MACHINERY AND EQUIPMENT INDUSTRY, 1970 AND 1978/

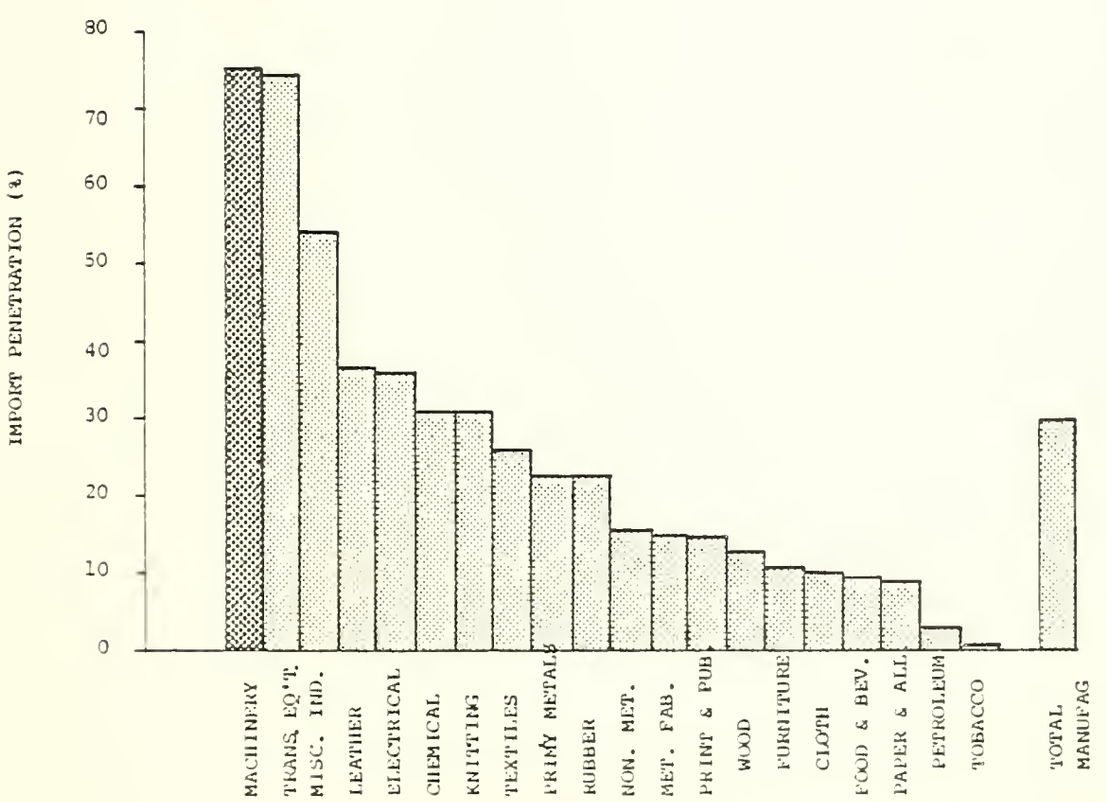
TABLE 9

Machinery Subsectors[3]	Import Penetration (%)	
	1970	1978
Resource-Based	64	79
Plant and Industrial	48	62
Service	48	63
Overall	53	69

Sources: Statistics Canada and Department of Industry, Trade and Commerce

. The machinery and equipment industry has the highest import penetration of all manufacturing sectors (Figure 3).

FIGURE 3: IMPORT PENETRATION (%) BY INDUSTRY GROUPS, CANADA, 1977



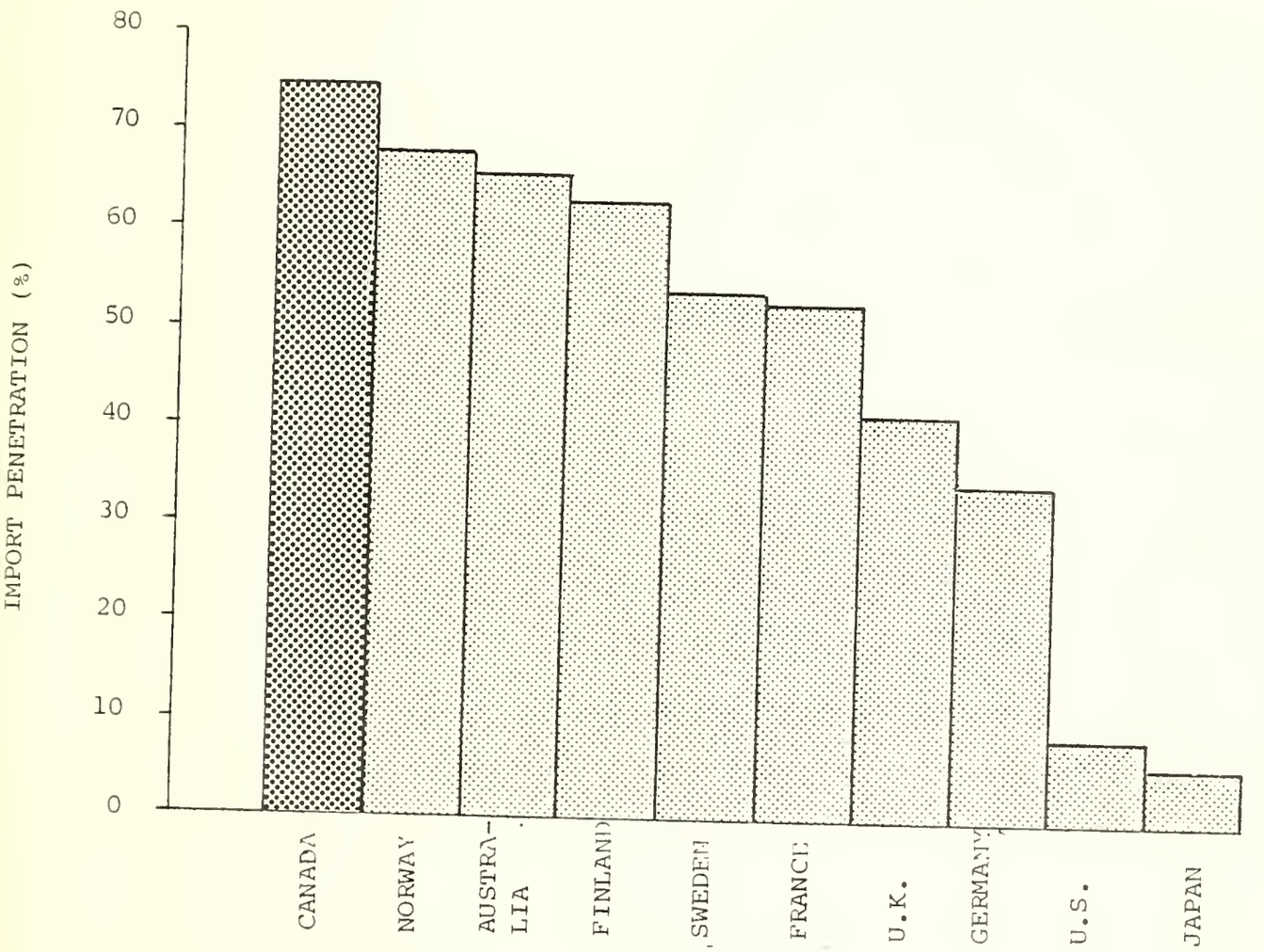
Source: Statistics Canada

Note: Machinery Industry referred to here is based on the Statistics Canada definition, with consequent differences from Table 5.

3. Import penetration by individual machinery group. See Appendix 1.

. In fact, as of 1976 Canada had the highest rate of imports penetration of non-electrical machinery trade in the OECD groups of nations (Figure 4).

FIGURE 4: COMPARISON OF IMPORT PENETRATION, NON-ELECTRICAL MACHINERY, OECD COUNTRIES, 1976



Source: MEMAC and computed on the basis of data from OECD Reports and CSO (Central Statistics Office U.K.) Annual Abstract of Statistics

. In addition, next to Iceland, Canada also has both the highest per capita and the largest absolute machinery trade deficit of all the OECD countries (Table 10). In terms of the amount of imports, Canada ranks just behind the U.S. and West Germany. However, both these countries have very substantial exports to more than offset the imports.

COMPARISON OF TRADE PERFORMANCE, NON-ELECTRICAL MACHINERY, OECD COUNTRIES, 1977 — TABLE 10

	COUNTRIES	EXPORTS	IMPORTS	TRADE BALANCE	TRADE BALANCE/CAPITA	
		(IN U.S. $ MILLION)			(IN U.S. $)	
1.	Iceland	5	57	- 52	-235	Deficit
2.	CANADA	3,375	6,900	-3,525	-151	
3.	New Zealand	51	498	- 447	-144	
4.	Australia	267	2,056	-1,789	-127	
5.	Ireland	385	729	- 344	-108	
6.	Spain	910	3,521	-2,611	- 72	
7.	Greece	145	744	- 599	- 65	
8.	Belgium-Lux	2,634	3,268	- 634	- 62	
9.	Netherlands	2,871	3,644	- 773	- 56	
10.	Portugal	90	626	- 536	- 54	
11.	Austria	1,365	1,690	- 325	- 43	
12.	Turkey	8	1,238	-1,230	- 29	
13.	Finland	850	947	- 97	- 20	
14.	Denmark	1,463	1,359	104	20	Surplus
15.	France	8,698	7,157	1,541	29	
16.	U.S.A.	22,466	9,441	13,025	60	
17.	Italy	7,383	3,562	3,821	68	
18.	Japan	10,149	2,236	7,913	70	
19.	U.K.	10,215	6,163	4,052	73	
20.	Norway	506	168	338	84	
21.	Sweden	3,318	2,622	696	84	
22.	W. Germany	25,339	6,938	18,401	300	
23.	Switzerland	3,835	1,566	2,269	358	

Source: United Nation Statistics and OECD Reports

Note: Definition for machinery here varies slightly with those used in the previous tables, yielding some differences in the figures.

. Within the industry, the largest deficit has been incurred in the resource-based machinery subsector, whose share of the total deficit has increased from about 30 per cent in 1970 to over 40 per cent in 1978 (Table11). In particular, the agricultural machinery group within this subsector -- which traditionally gave Canada a world-wide reputation -- has experienced not only one of the highest import penetrations (about 90 per cent), but has also produced the largest deficit among all the machinery groups -- nearly $700 million in 1978.(Appendix 2)

MACHINERY DEFICITS AND PER CENT OF TOTAL BY SUBSECTORS, 1970 and 1978 — TABLE 11

Machinery Subsectors	Deficits ($M)		% of Total	
	1970	1978	1970	1978
Resource-Based	- 484	-2,018	31.0	42.1
Plant and Industrial	- 700	-1,535	44.7	32.1
Service	- 380	-1,245	24.3	25.8
Overall	-1,154	-4,798	100.0	100.0

Source: Statistics Canada and Department of Industry, Trade and Commerce

- The U.S. continues to be the principal supplier and buyer of our machinery and, currently accounts for about 60 to 70 per cent of total Canadian machinery exports and imports.

- Approximately 50 per cent of machinery imports consist of products that compete with the Canadian production lines.[4] There are also significant imports of component parts used to produce Canadian machinery.[5] Overall, more than 50 per cent of machinery imports enter duty-free.

- As a result of the GATT negotiations, the tariff schedule for most machinery and equipment is to be lowered by some 40 percent, from a current rate of about 15 percent to slightly more than 9 percent (over a period of 8 years). The tariff change will not affect the agricultural machinery sector, now 90 percent tariff-free. Under the present and proposed tariff schedule, a considerable amount of finished resource-based machinery can be imported duty-free while at the same time, a tariff is applied to various component parts. Moreover, some machinery and equipment under a tariff schedule, can still be imported duty-free under the Federal duty-remission program (MACH).

- Aside from tariff, virtually all industrialized countries have a variety of non-tariff measures to assist the development of their machinery industry. They take many forms, such as government procurement policy, direct subsidies, domestic content regulations, surcharges, exclusionary tendering, fixed technical specifications and import quotas (appendixes 3 and 4).

(V) RETURN ON INVESTMENT AND CAPITAL EXPENDITURE

- Since 1970, the Canadian machinery industry has a higher rate of return -- about 11½ per cent per year -- than in manufacturing industries as a whole, and in such industries as electrical products and paper allied industries (Table 12).

RETURN ON INVESTMENT, MACHINERY AND OTHER SELECTED MANUFACTURING INDUSTRIES, CANADA, 1971 TO 1978

TABLE 12

After Tax Profit As A Per Cent of Shareholders Equity

	1971	1972	1973	1974	1975	1976	1977	1978	Average 1971 to 1978
Machinery	9.3	12.1	12.8	17.6	16.4	14.6	9.0	10.2	11.4
Total Manufacturing	9.5	11.0	14.4	16.7	12.5	11.5	5.5	6.4	9.5
Electrical Products	10.2	14.6	15.3	16.0	13.7	9.0	7.0	6.4	10.7
Primary Metals	8.4	9.5	12.6	17.2	10.5	7.3	11.8	16.1	11.7
Paper and Allied	3.0	2.0	8.5	20.5	10.4	7.8	8.8	17.1	9.6
Transportation Equipment	15.0	19.3	18.9	14.3	12.4	16.7	15.6	15.0	14.9

After Tax Profit As A Per Cent of Total Assets

	1971	1972	1973	1974	1975	1976	1977	1978	Average 1971 to 1978
Machinery	4.9	6.5	6.7	8.3	7.4	6.9	4.1	4.6	5.5
Total Manufacturing	4.8	5.6	7.3	8.2	6.5	5.9	5.5	6.4	5.6
Electrical Products	5.0	7.3	7.7	7.9	7.7	4.8	3.2	3.3	5.4
Primary Metals	4.0	4.7	6.4	8.5	5.2	3.5	5.7	8.2	5.7
Paper and Allied	1.4	0.8	3.8	9.4	5.4	3.8	3.3	7.4	4.5
Transportation Equipment	6.9	9.2	9.0	6.9	6.3	8.1	7.2	6.5	7.0

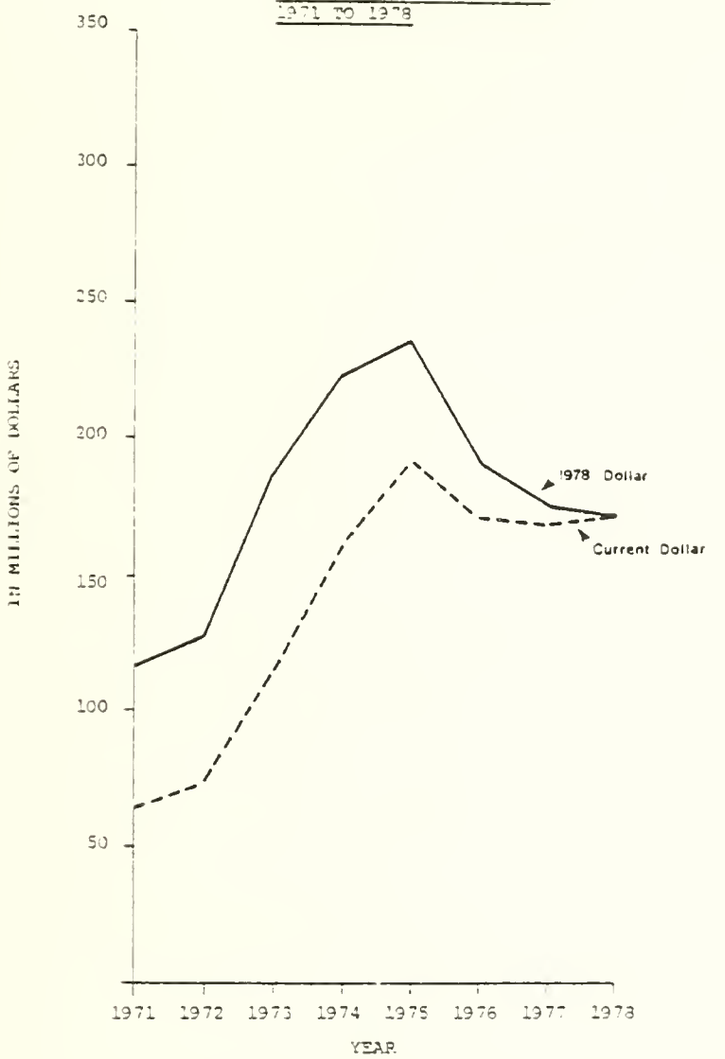
Source: Statistics Canada

4. Report by the Sector Task Force, op.cit.

5. For example, in the pulp and paper and mining machinery sectors, parts accounted for about half of the total imports.

. Against this background of investment return, industry's level of new capital expenditures has not helped offset import penetration. Between 1971 and 1978, the industry's capital investments averaged about $180 million a year (1978 dollars) and accounted for about three per cent of total sales (Figure 5.

FIGURE 5: CAPITAL INVESTMENTS MACHINERY INDUSTRY IN CANADA, CURRENT AND 1978 CONSTANT DOLLAR, 1971 TO 1978



Note: Information was based on Statistics Canada, but was adjusted to reflect the machinery definition used in this report.

. The proportion of sales devoted to capital investments by the industry remained lower than in manufacturing industries as a whole, and considerably lower than in the more capital-intensive sectors such as primary metals and paper and allied products (Table 13). In recent years, the level of capital investments by the industry has dropped from $273 million in 1975 to $174 million in 1978, a decline of 27 per cent.[6]

---

6. Figures are in 1978 Constant dollar terms.

CAPITAL EXPENDITURES AS A PER CENT OF TOTAL SALES, MACHINERY VERSUS OTHER INDUSTRIES, CANADA, 1971 TO 1978

TABLE 13

Year	Machinery	Total Manufacturing	Transportation Equipment	Electrical Products	Primary Metals	Paper and Allied
1971	2.0	5.2	1.5	3.0	10.5	12.0
1972	2.1	4.7	1.3	2.3	9.3	8.9
1973	2.8	4.8	1.6	2.9	8.3	6.6
1974	3.0	5.4	2.3	2.6	11.2	7.0
1975	3.1	5.2	1.8	2.2	12.8	7.0
1976	2.5	4.6	1.2	2.2	9.4	7.5
1977	3.9	6.5	1.9	2.4	9.3	7.2
1978	3.6	5.9	2.0	2.1	7.7	5.8
Average 1971-1978	2.9	6.1	1.7	2.4	9.7	7.3

Source: Statistics Canada

(VI) RESEARCH AND DEVELOPMENT

. Although the industry's rate of increase in R and D spending recently may not equal sectors such as transportation equipment, it more than matches total manufacturing R and D spending (Table 14). Also, the industry's proportion of sales allocated to research and development was more than double that for total manufacturing and for transportation equipment industries.

COMPARISON OF RESEARCH AND DEVELOPMENT EXPENDITURE, MACHINERY VERSUS SELECTED INDUSTRIES, CANADA, 1971 TO 1978

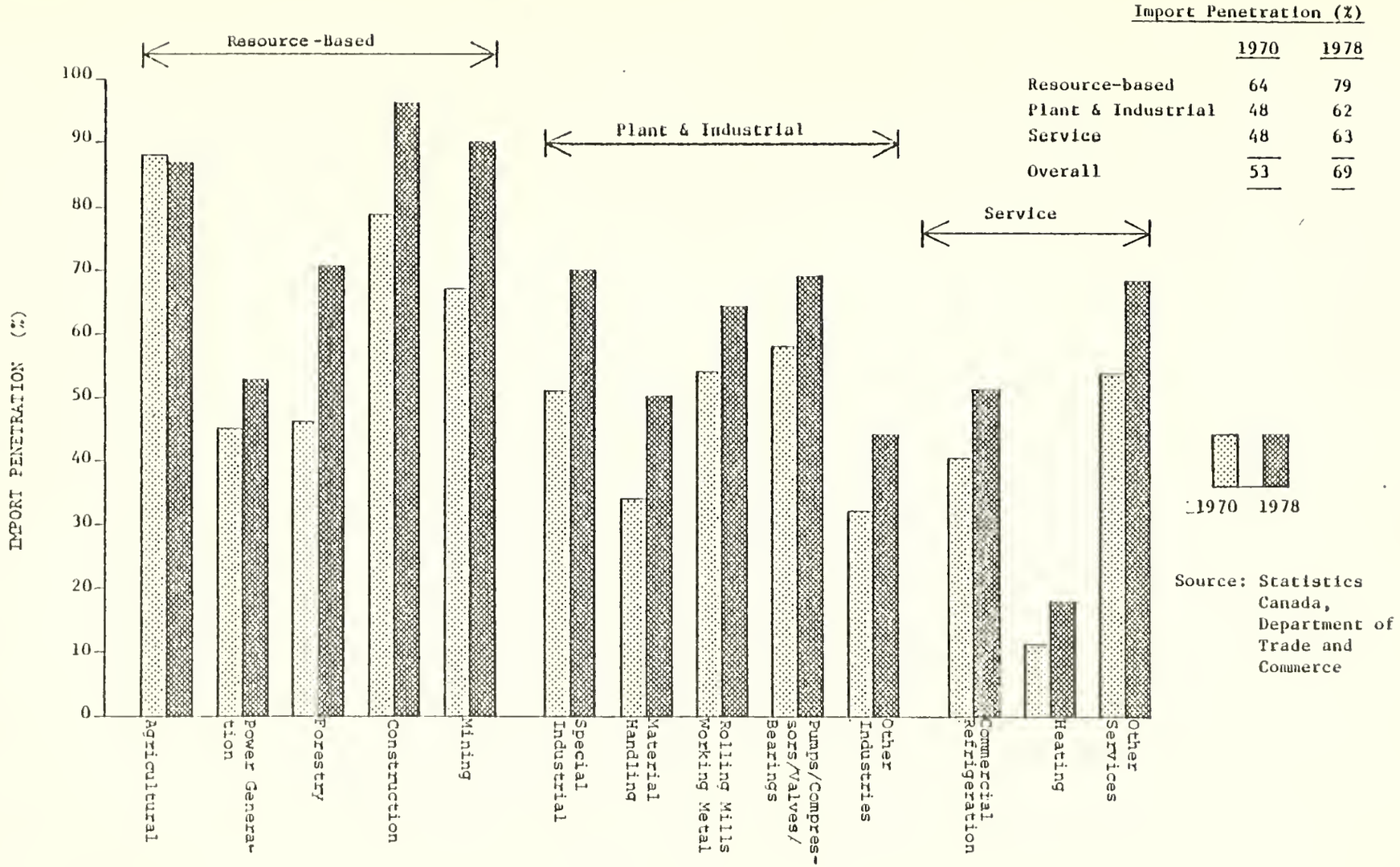
TABLE 14

Industrial Groups	R & D Expenditure 1978 ($M)	% of R & D Expenditure to Total Sales 1971 - 1978	Average Annual % Change 1971 - 1978
Macninery	67.5	1.3	8.7
Transportation Equipment	138.8	0.6	17.9
Primary Metals	159.9	0.8	8.0
Electrical Products	188.5	2.7	5.8
Total Manufacturing	701.0	0.6	9.9

Source: Statistics Canada

APPENDIX 1 PER CENT OF IMPORT PENETRATION BY SUB-SECTORS

MACHINERY INDUSTRY IN CANADA, 1970 to 1978



Source: Statistics Canada, Department of Trade and Commerce

. At the same time, the commitment to research and development by the Canadian machinery industry lags appreciably behind its U.S. counterpart, evidenced by the comparison below (Table 15). In absolute terms, the average annual size of the U.S. machinery industry's expenditure in R and D has been 50 times larger than in Canada.

COMPARISON OF RESEARCH AND DEVELOPMENT EXPENDITURE, MACHINERY INDUSTRY, CANADA VERSUS THE U.S., 1972 to 1976 — TABLE 15

	Canada	U.S.
Per Cent Increase	+17.8%	+77.9%
R and D Expenditure As a Per Cent of Total Production[7]	1.3%	3.0%
Average Annual R and D Expenditure (in 1976 dollars)	$59M	$3,254M

Sources: U.S. Abstracts, U.S. Department of Commerce, and Statistics Canada

(VII) CONCLUSIONS

. Since 1970, the Canadian machinery market has been expanding at an average rate of more than 12 per cent a year. Indications are that this increase will be maintained or even accelerated, in light of the number of major energy and other resource-capital projects that are in progress or being planned. These developments, together with an increased export market, are expected to sustain a fairly high level of machinery demand in the next few years.

. Nonetheless, it is unlikely that Canada can capitalize on this expanding market unless it can develop a more extensive and vigorous machinery industry. More than two-thirds of Canadian machinery and equipment are imported; in some of the industry's subsectors, import penetration reaches 90%, as in agricultural equipment where traditionally Canada has enjoyed an excellent reputation around the world. Since Canada imports nearly 80 per cent of its resource machinery, it can expect that 30 to 40 per cent of the economic benefits arising from large resource capital projects will go to other countries.[8]

7. The production measure was used because of lack of comparable U.S. sales data. However, the results would likely be quite comparable using sales criteria, as indicated by the Canadian situation:

	1972 - 1976
% of R and D expenditures to total sales	1.2
% of R and D expenditures to total production	1.3

8. Based on estimates that 40 - 50% of total project cost are machinery and equipment costs.

MACHINERY DEFICITS AND PER CENT OF TOTAL BY GROUPS, CANADA, 1970 AND 1978

APPENDIX 2

INDUSTRIAL GROUPS		DEFICITS ($M) 1970		DEFICITS ($M) 1978		% OF TOTAL 1970		% OF TOTAL 1978	
Agricultural		- 97		-684		6.2		14.3	
Power Generation		- 92		-409		5.9		8.5	
Forestry	RESOURCE-	- 43	-484	- 52	-2018	2.8	31.0	1.1	42.1
Construction	BASED	-168		-598		10.7		12.4	
Mining		- 84		-275		5.4		5.7	
Special Industrial		-208		-484		13.3		10.1	
Materials Handling		- 74		-178		4.7		3.7	
Rolling Mills and Metal Working	PLANT AND	-216	-700	-377	-1535	13.8	44.7	7.9	32.1
Pumps, Compressors, Valves and Bearings	INDUSTRIAL	-147		-340		9.4		7.1	
Other Industrial		- 55		-156		3.5		3.3	
Commercial Refrigeration	SERVICE	- 64		-198		4.1		4.1	
Heating	INDUSTRIES	- 9	-380	- 19	-1245	0.6	24.3	0.4	25.8
Other Services		-307		-1028		19.6		21.3	
TOTAL		-1,154		-4,798		100.0		100.0	

Sources: Statistics Canada
Department of Industry, Trade and Commerce

APPENDIX 3: NON-TARIFF PRACTICES, U.S.A.
MACHINERY PRODUCTS

Product Category	U.S. Government Agency	Practices
Environmental Control Equipment	Export/Import Bank.	Buy national policy on Export/Import Bank financed projects.
Pumps	New Jersey State Government.	Imports excluded if product is manufactured in-State.
	U.S. Customs.	Shipment to U.S. subsidiary held up by U.S. Customs on purely paper work. Retroactive assessments are common.
	Export/Import Bank.	Foreign bids excluded for uranium plants. On Ex/Im Bank financed Cherron (Standard Oil of California) project, procurement of non-U.S. pumps was prohibited.
	U.S. Government.	Merchant Marine Act (of 1936 as amended 1970) requirement for minimum 50% U.S. content excludes Canadian bids.
	U.S. Government.	Non-U.S. bids are excluded on projects with Commercial Marine Financing.
	U.S. Government.	Non-U.S. bids are excluded in projects with tied financing such as the Parson, Whitemore St. Annes project and the British Petroleums project.
Valves	U.S. Government.	Because of regulation imposing compulsory marking of "Country of Origin", most U.S. dealers will not carry valves marked "Made in Canada" even if better priced.
	Tennessee Valley Authority (TVA)	Granting of local content premium of 13% total bid price, against Canadian valves.
Power Turbines	Rural Electrification Authority. National Electricity Bureau.	Where federal funding is involved in municipal power houses, the American content provision must be imposed.
	U.S. Corps of Engineers Bureau of Reclamation. Tennessee Valley Authority.	Require 51% local content under the Buy America Act.
Industrial Machinery and Equipment Generally	U.S. Customs.	Excessively severe and detailed customs examinations causing long delays that prevent timely foreign deliveries.
General	U.S. Government	DISC (Domestic International Sales Corporation) Program.

Source: MEMAC

APPENDIX 4: NON-TARIFF PRACTICES, OTHER COUNTRIES
MACHINERY PRODUCTS

Product Category	Type of Practices	Countries
Environmental Control Equipment	Buy national or EEC preference.	E.E.C.
Pulp & Paper Machinery	Control by import licences.	Brazil (particular problem), Mexico, Andean Pact, Spain, India.
	200% to 300% duty.	Brazil, New Mexico.
	100% average duty.	New Zealand.
	21% duty.	Australia, Andean Pact.
	Buy national policy.	Japan, Brazil, E.E.C., Sweden, Finland, Spain (in order of market importance).
	Local content regulations.	Brazil.
	Indirect subsidies to exporters.	Japan.
	Unrealistic financing of projects.	E.E.C.
Pumps	Will not invite bids from other countries.	U.K., (British Electricity Board), France.
	No foreign content.	French Government financed projects.
	Government sponsored inflation protection.	U.K., Japan.
	Two-tier pricing system.	E.E.C., Japan.
	Technical Barriers.	E.E.C.
	Tied financing.	France, Mexico, Andean Pact.
Steel Mill and Metal-working Machinery	Two-tier pricing system.	Japan.
Valves	Control via import permits(licences)	Most South American countries.
	Quota licences.	Australia, New Zealand South Africa.
Sawmill Machinery	Import licence control.	New Zealand.
Power Turbines	Buy national policy - will not consider off-shore tenders.	U.K. (British Gas Corporation, France (Gas de France), West Germany.
	Government sponsored inflation protection.	Japan, Italy.
Hydraulic Presses	Embargo via foreign currency restriction.	Brazil.
Industrial Machinery and equipment generally	Application of transfer of technology rules.	Brazil.
	Stringent local content rules.	Brazil.
	Government sponsored inflation insurance programs.	France, U.K. (Both countries exclude exports to other EEC countries.

Source: MEMAC

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